Issued January 28, 1909.

U. S. DEPARTMENT OF AGRICULTURE,
FOREST SERVICE—Circular 155.
GIFFORD PINCHOT, Forester.

PRODUCTION AND CONSUMPTION OF BASKET WILLOWS IN THE UNITED STATES FOR 1906 AND 1907.

By
C. D. MELL,
ASSISTANT DENDROLOGIST.

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PRODUCTION AND CONSUMPTION OF BASKET WILLOWS IN THE UNITED STATES FOR 1906 AND 1907.

INTRODUCTION.

This circular shows briefly the extent of the basket-willow industry in this country. The chief features in the consumption of basket-willow rods in 1907 were, first, an increase of more than 484,000 pounds over that of 1906; second, a slight advance in price for home-grown rods, particularly for the higher grades; and, third, a marked tendency on the part of manufacturers to grow their own stock, under improved methods of management, or, if they purchase stock, to use domestic willows of high grade.

The statistics given were compiled from brief reports of 161 manufacturers of willow ware throughout the United States. These reports give the quantity of home-grown and imported willow rods consumed by each manufacturer during 1906 and 1907. It was impossible to obtain a statement from all basket makers, though the returns show approximately the value, relative importance, and proportional quantities of home-grown and imported stock consumed. The failure of some firms to report, coupled with the imperfect list of manufacturers available and the lack of exact figures of quantities consumed prior to 1906, makes it impossible now to show with exactness the relative increase or decrease in the industry over a period of years. It is hoped that in the future willow-ware makers will cooperate more fully by responding to requests for information concerning quantities of stock used, so that future publications may contain more complete data.

The Forest Service desires to acknowledge the hearty cooperation given by a large number of willow-ware manufacturers throughout the United States in furnishing the data upon which this circular is based.

VARIETIES OF WILLOWS USED.

Unfortunately, not all basket makers know the local or the scientific names of willows used in their factories. The principal willows grown in this country and used for regular trade ware are American green, purple (Welsh), and Lemley, and a number of subvarieties of these, known by different names in the various localities where they are

grown. Since the quality of the rods of a single variety may vary greatly with the method of culture and with the nature of the soil, basket makers do not lay as much stress on the variety of the willows as on the quality of the rods. With the progress of the willowware industry demands have sprung up, however, among growers for a greater number of different varieties of willows suited to different soils and situations. Formerly American green and purple willows were the chief ones planted, but to day there are no less than a dozen different varieties grown successfully in some parts of the country. Large-sized rods can be obtained readily by planting willows of quick growth in suitable soil, but the finer grades of rods, which possess special qualities, require particular soil conditions and proper management. The best native willows are grown in Maryland and Pennsylvania, and bring higher prices than those grown elsewhere. This is due not to any inherent superiority in the varieties grown, but chiefly to the favorable soil and climatic conditions, coupled with the approved system of management. A number of basket makers have located in and near Baltimore in order to be near growers of these high-grade rods.

The American green is extensively cultivated in this country. It is known by a number of names in the different regions where it is grown. There are several subvarieties which are also extensively cultivated. Baltimore green, Dover green, silver skin, and silver white are among the most common ones. The American green grows very rapidly, and the rods are used not only for all kinds of fancy basket ware, but are also especially desirable for heavy weaving, such as hampers and other ware requiring strength, durability, and lightness. The rods are usually sap peeled, and are often used for split-stock work. After peeling, the rods remain almost pure white.

The purple is among the most beautiful willows cultivated in this country, and the peeled rods are much in demand. They are thin and long, and are especially desirable for fancy baskets. The purple willow is occasionally used with the bark on for rough baskets, and is said to outlast any other willow under equal conditions.

The Lemley may be classed among the high-grade basket willows when grown in suitable locations and under approved methods of management. In old plantations the rods tend to taper and form heavy butts. The rods peel easily and remain a brilliant white. The pith is small, and the wood firm, moderately heavy, and relatively easy to split.

CLASSES OF RODS.

Commercial basket-willow rods are of three general classes: White, or sap peeled; buff, or steam peeled; and brown, or rods with the bark on. White, or sap-peeled, rods are those which have been peeled after

they have begun to sprout, and buff, or steam-peeled, rods are those from which the bark has been loosed by steaming or boiling before peeling. All rods are graded according to height and quality, and, in most cases, according to variety. Imported rods are all white or sap peeled and bring the highest price per pound. Formerly fine willow ware was made largely of steam-peeled rods, but at present pure-white rods are more in demand. In boiling or steaming the rods before peeling, the tannic acid in the bark stains the wood a buff or tan color, which detracts from the sale value for fancy basket ware. It is often claimed that ware made of steam-peeled rods is much firmer and wears longer than that made of sap-peeled rods. Complete figures on the quantity of steam-peeled rods used in this country are not now available, but there is a marked tendency to substitute sap-peeled for steam-peeled rods.

An artificial method of inducing the rods to sprout during the winter has been successfully employed by a number of basket makers who grow their stock. This is done by storing the rods in a steam-heated room with a temperature as near as possible to summer heat. For this purpose the rods may be cut any time after December 15 and set upright in a bed of very wet sandy loam about four inches deep. It requires from fifteen to twenty days for the rods to sprout. Those who employ this method begin peeling about the 1st of January, while those who wait for the rods to sprout in the spring seldom peel earlier than the middle of April. Eventually this method will doubtless find favor with most growers who have extensive holts.

INCREASE IN THE PRICE OF RODS.

The rapid rise in the value of raw material during the last two years and the strong probability of a still further increase have stimulated growers to employ better methods of management in the holt. A number of the largest consumers of willow rods are convinced that home-grown rods are equal or superior in quality to those imported. In general, however, the rods grown in this country are less carefully sorted into height and quality classes. Exporters can not afford to let any except the best grades of rods come into this country, because of the duty. There is no reason why American growers should not sort more carefully, and thus obtain as much for their rods as foreign growers. By intensive cultivation in the holt and by careful sorting the grower may obtain results which so far have seldom been got in this country. At present prices for home-grown stock, farmers who have suitable land and time to grow willows can obtain a fair profit the second year after planting.

IMPROVEMENT IN THE QUALITY OF THE RODS.

To compete successfully with importers of raw material, American growers are now beginning to realize that they must produce a better grade of rod. Practically all large willow plantations established during the last decade are being conducted under approved methods of management and are yielding results so encouraging that within a few years the importation of basket-willow rods as well as manufactured ware is likely to be materially reduced.

During the last four or five years there has been a marked tendency among willow-ware manufacturers to grow the raw material required in their factories. Eleven per cent of the basket makers in this country grow all the willows they consume. Approximately 22 per cent grow a small portion of the stock, while the remainder obtain their stock either from the growers direct or from importers.

IMPORTATION PRIOR TO 1906.

Previous to 1855 no record was kept of the quantity of basket-willow rods imported into the United States. Doubtless raw material was imported long before that date. Unfortunately, there is no record of the countries from which these importations are made, but it is evident that France leads, followed by Germany, Holland, and Belgium. In manufactured ware Germany leads, followed by France, Belgium, Austria, Holland, and Italy.

The value of the raw material imported since 1860 is given in the following tables:

TABLE 1.—*Value of imported raw material for each decade since 1860.*

[From the Department of Commerce and Labor.]

Years.	Total value.	Average.
1860–1870	$718,689	$71,869
1870–1880	297,310	29,731
1880–1890	316,655	31,666
1890–1900	352,817	35,282
1900–1907	190,868	27,267

In the records of imports from 1860 to 1866 raw and manufactured material were not distinguished. During the succeeding decade the amount of imported raw material fell abruptly. From then a slow but steady increase took place until 1900. The average annual import for the decade ending in 1900, however, was a little less than one-half of that during the decade ending in 1870.

TABLE 2.—*Value of imported material for each year since 1901.*

[From the Department of Commerce and Labor.]

Year.	Value.
1901	$17,334
1902	22,992
1903	25,383
1904	31,440
1905	25,109
1906	29,374
1907	39,236
Total	190,868
Average annual value	27,267

Since 1900 the average annual imports have again fallen to $27,267. In 1907 the imports amounted to $39,236, the highest figure since 1893.

It is impossible to attribute the fluctuation in the value of imported raw material to any particular cause. It would be natural to suppose that during the years in which the imports of raw material sank the importation of manufactured basket ware rose. This is not the case, however, for the figures for imported basket ware show, without exception, that the value is directly in proportion to that of raw material.

IMPORTATION IN 1906 AND 1907.

Table 3 shows the quantity of imported rods consumed in the different States. Owing to the failure of many manufacturers to give, in response to the Forest Service inquiry, the price paid for imported rods, it was not possible to obtain a fair average figure for the price of such stock.

TABLE 3.—*Consumption of imported basket willows, by States, 1906–7.*

State.	1906.	1907.	Per cent of increase (+) or decrease (−).
	M lbs.	*M lbs.*	*Per cent.*
Illinois	21	35	+ 66.7
Kentucky	8	3	− 62.5
Maryland	1	4	+ 300.0
Massachusetts	135	185	+ 37.0
New Jersey	25	22	− 12.0
New York	177	226	+ 27.7
Ohio	0.4	8	+1,900.0
Pennsylvania	17	70	+ 311.8
Wisconsin	37	54	+ 45.9
Other States[a]	44	55	+ 25.0
Total	465.4	662	+ 42.2

[a] States included in "Other States" are Michigan, Minnesota, Missouri, and California.

Since 1906, the first year for which detailed figures are available, there has been an increase in the consumption of imported stock of 42.2 per cent. Kentucky and New Jersey consumed less in 1907 than

during the previous year, while in Missouri and Minnesota the consumption has remained the same. New York, which produces more willows than any other State, has consumed fully one-third of the imported rods both in 1906 and 1907. Massachusetts consumed 29 per cent of the imported stock in 1906, and 28 per cent in 1907. Pennsylvania, which was the seventh State in the use of imported stock in 1906, became third in 1907, displacing Wisconsin in that year. Illinois, which was fifth in point of importance in 1906, retained its rank in 1907 by an increase of consumption of 66.7 per cent over that of the preceding year.

CONSUMPTION OF HOME-GROWN BASKET WILLOWS IN 1906 AND 1907.

PEELED RODS.

Table 4 gives the consumption of peeled basket-willow rods (home-grown) in 1906 and 1907 by States. The reports for both years were received from basket makers, and no claim is made that the figures are absolutely correct. They are, however, close approximations. There are a number of small basket makers in many of the large cities who were not reached or who declined to report, but the influence on the total quantity consumed is relatively small.

TABLE 4.—*Peeled home-grown basket-willow rods consumed in 1906 and 1907.*

State.	1906.	1907.	Per cent of increase (+) or decrease (−).
	M lbs.	*M lbs.*	*Per cent.*
Illinois	29	32	+ 10.3
Kentucky	47	47	.....
Maryland	174	225	+ 29.3
Massachusetts	64	74	+ 15.6
New Jersey	42	40	− 4.8
New York	625	708	+ 13.3
Ohio	38	31	− 18.4
Pennsylvania	42	111	+164.3
Wisconsin	43	59	+ 37.2
Other States[a]	254	315	+ 24.0
Total	1,358	1,642	+ 20,9

[a] States included in "Other States" are Michigan, Indiana, Iowa, Nebraska, Missouri, Oregon, California, and District of Columbia.

The table shows that the Middle States consumed during 1906 approximately two-thirds and in 1907 fully five-eighths of the total stock of peeled rods, while New York State alone used nearly one-half of all the stock during the two years. Iowa does not report any for 1906, while in 1907 the total consumption for that State amounted to 105,000 pounds. Illinois, Massachusetts, Michigan, and Wisconsin show a considerable increase, while Missouri, New Jersey, and Ohio show a decrease. The total consumption for 1907 is 1,642,000 pounds,

which is 20.9 per cent higher than that of 1906. Making a fair allowance for incomplete reports, it is safe to say that at present the annual consumption of home-grown peeled basket willows in the United States approximates 2,000,000 pounds.

UNPEELED RODS.

The quantity of unpeeled willow rods manufactured into baskets in this country is estimated to be about 10,000 pounds per year. Farmers, gardeners, and florists use ware made of unpeeled rods, but only to a limited extent. Native willows collected along the streams are largely used for this purpose. The unpeeled cultivated willows sell in carload lots from $12 to $20 per ton green weight. This is as cheap as the wood from which veneer or splint baskets are made. Were it not for the splint baskets made of red gum, elm, and ash, which successfully compete with the rough willow ware, the amount necessary to supply the demand would be many times as great as it is now. In Europe rough willow baskets are in much wider use than in this country. It is likely, however, that as soon as the woods used for splint baskets become scarcer willow ware will come in more general use here.

Many German immigrants who are basket makers by trade, but who are following other occupations, gather willows during spare moments and work them into baskets to sell to their neighbors. It would be difficult to estimate the value of the ware produced by these local basket makers.

TOTAL QUANTITY OF BASKET WILLOW CONSUMED IN 1906 AND 1907.

Table 5 summarizes the raw basket willow consumed in the country during 1906 and 1907. It gives a sum total expressed in thousands for the two years, as well as the percentages of increase or decrease for each State. Kentucky, Missouri, and New Jersey were the only States in which the quantities consumed decreased during the two years. There was a total increase of 26.9 per cent in 1907 over 1906.

TABLE 5.—*Comparison of the total quantity of rods consumed in 1906 and 1907.*

State.	1906.	1907.	Per cent of increase (+) or decrease (−).
	M lbs.	*M lbs.*	*Per cent.*
Illinois	50	67	+ 34.0
Kentucky	55	50	− 9.1
Maryland	175	229	+ 30.9
Massachusetts	199	259	+ 30.2
New Jersey	67	62	− 7.5
New York	802	934	16.5
Ohio	39	39	.....
Pennsylvania	39	164	+ 320.5
Wisconsin	80	113	+ 41.3
Other States[a]	292	365	+ 25.0
Total	1,798	2,282	+ 26.9

[a] States included in "Other States" are Indiana, Michigan, Iowa, Missouri, Nebraska, Oregon, and California, and the District of Columbia.

Table 6 gives the quantities of rods, both imported and domestic, consumed in each State during 1906 and 1907.

TABLE 6.—*Quantity of basket-willow rods consumed in 1906 and 1907.*

State.	1906.			1907.		
	Firms reported.	Rods consumed.	Per cent of total.	Firms reported.	Rods consumed.	Per cent of total.
		M lbs.			*M lbs.*	
Illinois	4	50	2.84	5	67	2.91
Kentucky	6	55	3.13	6	50	2.17
Maryland	12	175	9.95	13	229	9.95
Massachusetts	7	199	11.31	7	259	11.25
New Jersey	6	67	3.81	6	62	2.69
New York	65	802	45.59	77	934	40.57
Ohio	7	38	2.16	8	39	1.70
Pennsylvania	18	38	2.16	22	181	7.86
Wisconsin	5	43	2.45	5	113	4.91
Other States[a]	11	292	16.60	11	368	15.99
Total	141	1,759	100.00	160	2,302	100.00

[a] States included in "Other States" are Indiana, Michigan, Iowa, Minnesota, Missouri, Nebraska, Oregon, and California, and the District of Columbia.

Table 7 shows, by States, the value of the total quantity of rods, imported and domestic, consumed for the two years. The value of the raw material for 1906 is $104,830.50 and for 1907 amounts to $154,605.

head, and are, therefore, almost impossible to separate. It is evident that the figures given here are in some cases much too high, though the general results may be accepted as fairly accurate.

The following table shows the figures compiled from the census reports and from other sources:

TABLE 9.—*Value of raw material consumed and of manufactured ware produced, 1890 and 1900.*

State.	Raw material.		Manufactured ware.	
	1890.	1900.	1890.	1900.
New York	$129,130	$69,008	$347,955	$228,096
Pennsylvania	22,687	20,561	83,917	71,596
Maryland	9,250	9,689	36,467	42,951
Massachusetts	2,430	6,940	10,176	35,000
Ohio	11,685	4,092	50,065	23,170
Illinois	18,200	2,462	62,350	20,228
Kentucky	10,715	3,318	33,638	11,412
Louisiana	2,195	890	8,975	3,304
New Jersey	313	570	950	4,160
Wisconsin	926	965	5,665	4,124
West Virginia	480	612	1,200	2,405
South Carolina	300	360	1,095	1,650
Vermont	.....	65	.....	533
Delaware	.....	27	.....	224
Kansas	.....	14	.....	200
Georgia	40	30	550	200
Other States[a]	8,252	14,613	15,640	34,673
	216,603	134,216	658,643	483,926

[a] States included in "Other States" are Indiana, Michigan, Iowa, Minnesota, Missouri, Nebraska, and California, and the District of Columbia.

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